

Overview of the DOE National Bioenergy Center

Stanley R. Bull
National Renewable Energy Laboratory

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A Strategy



Two principal thrusts form a strategy for realizing the opportunity

- Multiproduct focus from residues and traditional biomass
- Designed biomass

Both thrusts consider the whole life cycle approach to realizing the strategy

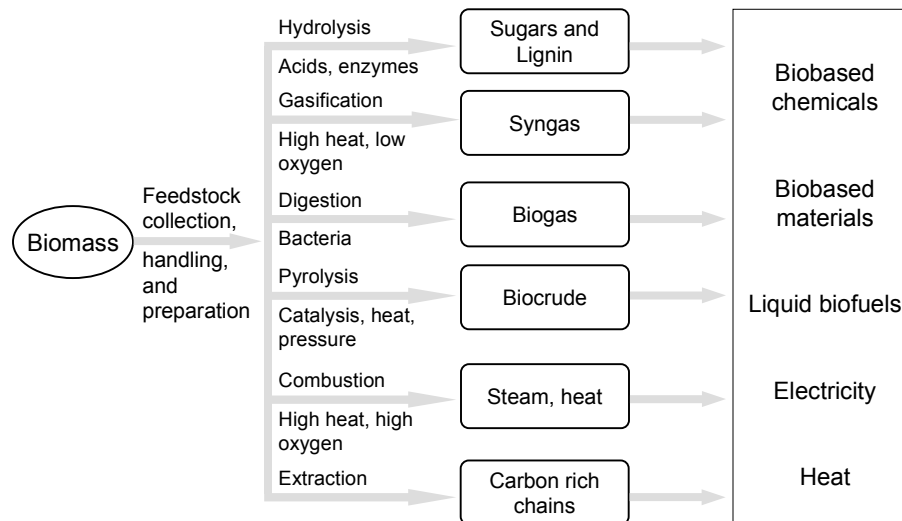


Multiple Factors in Biomass Use

Land	Feedstocks	Technologies	Output	
Current cropland	Grains & Feed Seed Stalks/leaves	Planting, Harvesting, Management	Food/Feed	
Forest land	Trees Hardwoods Softwoods Short rotation Trimming	Materials Handling	Fiber/Pulp Solid Wood Products	
Rangeland and Pastures	Grasses Switchgrass Sugar cane Bagasse Stalks	Chemical/Thermal/ Mechanical Gasification Combustion Pulping Grinding, cutting, sawing Spinning	Chemicals/ Materials Polymers Fertilizer Pesticides Textiles	
Fallow land CRP	Fiber Crops Cotton Sisal	Energy Conversion Systems Advanced Turbines Fuel Cells	Power Electricity Heat Combined Heat/ Power	
Marginal land	Row Crops	Biological Fermentation Enzymes Composting Digestion	Fuels Ethanol Methanol Biodiesel Biogas Hydrogen Synthesis gas Hydrocarbons	
	Post-consumer Waste	Manufacturing		
	Construction Demolition Wood			
	Animal Residues			



Bioenergy Pathways



Elements of the Integrated Systems Role

- Research
- Development
- Demonstration
- Technical Assistance
- Strategic and Multiyear Planning
- Resource and Environmental Evaluation
- Process and Life Cycle Analysis
- Models, Data, and Information



The National Bioenergy Center



Background on DOE/EE National Centers

- National Wind Technology Center - 1994 (NREL and SNL)
- National Center for Photovoltaics - 1996 (NREL and SNL with other labs)
- National Bioenergy Center - 2000 (NREL and ORNL with other partners)



NREL and ORNL have a history of successful informal partnerships

- Biofuels Program
- Biomass Power Program
- Biotechnology Symposium
- Alternative Feedstocks
- 11-Lab Study
- Phytocarbon research



National Bioenergy Center mission supports the development of a viable bioenergy industry

The National Bioenergy Center fosters capability building in renewable biobased fuels, chemicals, industrial products, and power to catalyze the creation of new industries and will support technical improvements in efficient and economical use of biomass in agriculture- and forest-based industries.

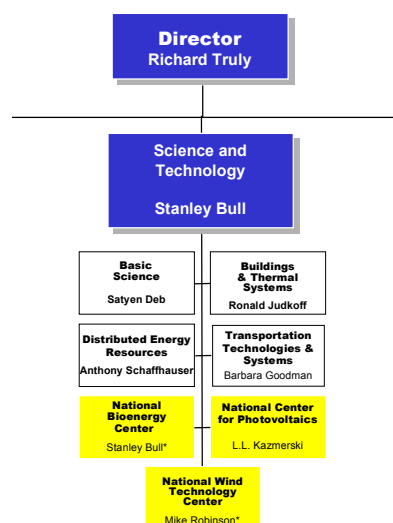


The benefits of a National Bioenergy Center

1. Support existing sector programs
2. Support the Biomass R&D Initiative
3. Strategic and multi-year integrated planning to assure optimum use of Laboratory, university and industry resources.
4. Provide process and life cycle analyses
5. Center for models, data, and information
6. Provide technical assistance to industry and others
7. Leverage DOE's biomass resources with life and plant science capabilities of DOE and other agencies.

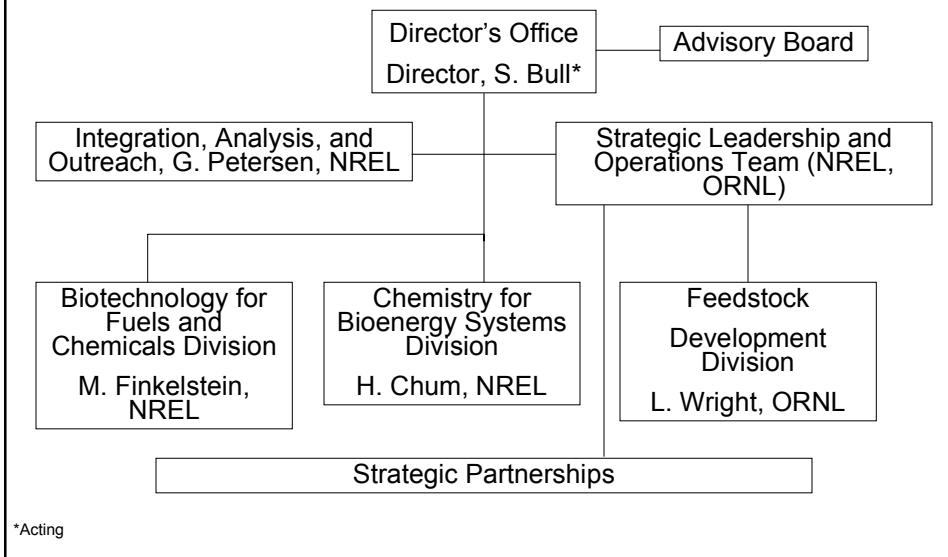


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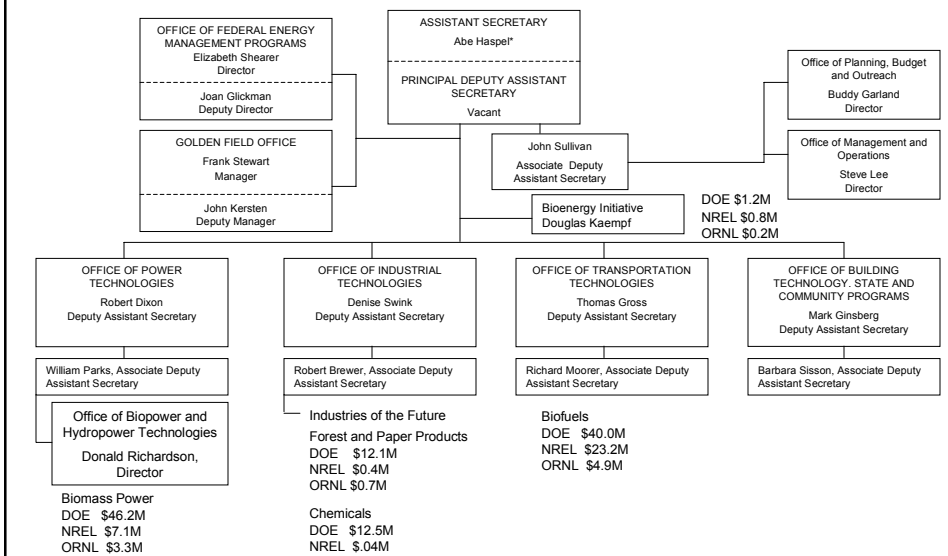




National Bioenergy Center



Office of Energy Efficiency and Renewable Energy Bioenergy and Biobased Products (\$M, FY 2001)





NREL Bioenergy Research and Development Tour Topics

- Plant/Crop Genomics Characterization
- Biomass Characterization
- Biorefinery Concepts
- Molecular Beam Mass Spectrometry
- Thermochemical Users Facility
- Strain Development/Genetic Engineering
- Enzyme Technology and Genomics/Robotics
- Process Development Unit

